

REMARKS

The Office Action of April 11, 2003 has been received and its contents carefully noted.

The present Amendment makes revisions in the specification in order to improve the idiomatic English and also in order to introduce terminology that now appears in the claims. The Amendment cancels claims 6-10, revises claim 12, and adds new claims 13-23.

The present application discloses a multiplexing arrangement in which pulse trains with different pulse amplitudes are modulated. The modulated pulse trains are then interwoven to form a multiplex pulse train. On the demultiplexing side, the different pulse amplitudes provide a basis for selecting which of the modulated pulse trains in the multiplexed train is to be passed to an output port.

The Office Action rejects the claims for obviousness on the basis of the prior art arrangement shown in Figure 5 of the application's drawings, in view of Ellis. The Ellis reference is directed to out-of-band signaling in a telephone system. The out-of-band signaling is used for supervisory and control purposes in Ellis, and the reference teaches the use of four signal states (rather than two signal states, as was used in the past) in order to convey such data (see, for example, the passage at column 1 of the reference, lines 39-46). Ellis' four signal states are shown in the Table in column 6 of the reference. The waveform shown at the top, left side in Figure 5 of the reference appears to represent a sequence of four-state signals having different amplitudes.

Independent claim 1 is a Jepson-type claim whose preamble reads on the left side of Figure 5 of the application's drawings. The body of claim 1 then recites, "an amplitude adjuster which implements an amplitude adjustment so that said modulated N pulse trains have different amplitudes from each other." It is respectfully submitted that the Ellis reference would not have provided an incentive, for an ordinarily skilled person, to adjust

the amplitudes of pulse trains that are time-division multiplexed together. The reasons why will be discussed below.

First, an ordinarily skilled person who wanted to improve some aspect of what is shown in the application's Figure 5 would not have had any reason at all to suspect that Ellis would be of assistance in this endeavor. Ellis is in a non-analogous art. It has nothing to do with time division multiplexing or demultiplexing. To the extent that the Ellis reference is concerned with multiplexing at all, it is frequency division multiplexing. Consequently, an ordinarily skilled person who sought to improve what is shown in Figure 5 of the application's drawings should not be presumed to know that the Ellis reference even exists.

But even assuming (for the sake of argument) that an ordinarily skilled person did indeed know about the Ellis reference, the reference would still not have led him to adjust the amplitudes of pulse trains that are multiplexed together in accordance with claim 1. Ellis uses different amplitudes to provide for signal states that are used to represent data. That is, Ellis has represented two data bits by using a pulse having four possible heights. But in claim 1, the preamble already provides that the pulse trains are modulated by data signals. The amplitude adjustment in the body of claim 1 pertains to the **pulse trains themselves**, not the data that they carry. This is distinctly different from what Ellis teaches.

Independent claim 12 recites a multiplexer, and it is respectfully submitted that multiplexer of claim 12 is not suggested by the prior art for reasons along the lines that have already been discussed with respect to claim 1. Claim 12 also recites a demultiplexer. It is unnecessary to dwell upon this aspect of claim 12 because it is similar to what is recited in new independent claim 13, which will be addressed in the following paragraphs.

The preamble of claim 12 provides that a multiplexed pulse train contains a plurality of modulated pulse trains which are generated by modulating un-modulated pulse trains that have different pulse amplitudes. The body of claim 13 recites five elements,

only one of which (a transmitting/blocking section) is disclosed in the cited prior art. It is respectfully submitted that the "reference section," "detection section," judgment section," and "control section" of claim 13 are novel, and moreover are not suggested either by Figure 5 of the application's drawings or by the Ellis reference or by both together.

Since the remaining claims depend from the independent claims discussed above and recite additional limitations to further define the invention, they are patentable along with their independent claims and need not be further discussed

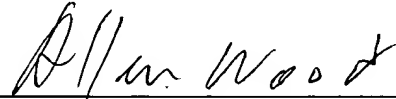
For the foregoing reasons, it is respectfully submitted that the application is now in condition for allowance. Reconsideration of the application is therefore respectfully requested.

Respectfully submitted,

July 11, 2003

Date

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